MUSHROOMS AND TOADSTOOLS:

HOW TO DISTINGUISH EASILY THE

Differences between Edible and Poisonous Fungi.

WITH

FIGURES OF TWENTY NINE EDIBLE AND THIRTY-ONE POISONOUS SPECIES.

BY

WORTHINGTON G. SMITH, F.L.S., M.A.I.

THIRD EDITION.

'A Popular Error.'

LONDON:

HARDWICKE & BOGUE, 192 PICCADILLY.

1876.

Price One Shilling

EDIBLE AND POISONOUS FUNGI.

O, mickle is the powerful grace, that lies
In plants, herbs, stones, and their true qualities ;
For nought so vile that on the earth doth live,
But to the earth some special good doth give."

ROM. AND JUL., Act II., Sc. 3.

LONDON:
WYMAN AND SONS, PRINTERS, GREAT QUEEN STREET,
LINCOLN'S-INN FIELDS, W.C.

MUSHROOMS AND TOADSTOOLS:

HOW TO DISTINGUISH EASILY THE

Differences between Edible and Poisonous Fungi.

WITH

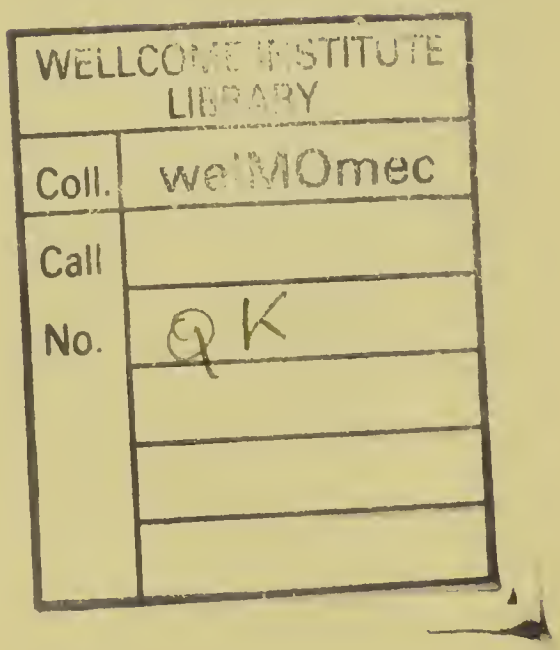
FIGURES OF TWENTY-NINE EDIBLE AND THIRTY-ONE POISONOUS SPECIES.

BY

WORTHINGTON G. SMITH, F.L.S., M.A.I.

THIRD EDITION.

LONDON:
HARDWICKE AND BOGUE, 192 PICCADILLY.
1876.



PREFACE.

"THE PROOF OF THE *Fungus* IS IN THE EATING." I have constantly eaten every species figured on the "Edible Sheet," and many others that are not. Few, I imagine, will expect me to have eaten every species on the "Poisonous Sheet," bearing, as they do, such adjective names as "gloomy," "fiery," "satanical," "inflaming," &c.

However, years ago, without a proper guide and with very little experience, I more than once became personally acquainted with the unpleasant qualities of *one or two dangerous species,* the particulars of which will be found in the proper place.

If the following brief descriptions are used in connec-

tion with the two sheets of drawings, which I have copied from nature and transferred to the stones myself (or in reference to the large drawings in the Bethnal Green Museum), no one who is capable of distinguishing one thing from another need fear making a mistake.

I shall be glad to give information regarding any species forwarded to me carriage paid.

W. G. SMITH.

15, Mildmay Grove, London, N.

INDEX TO POPULAR NAMES.

(E. refers to Edible, and P. to Poisonous Sheet; B.G.M. to the Number of the Drawing in the Bethnal Green Museum.

INDEX TO SCIENTIFIC NAMES.

INTRODUCTORY OBSERVATIONS.

"\. . . . . Oh, who can tell
The hidden power of hearbes, and might of magicke spell?"
SPENSER.

PERHAPS no other country can vie with Great Britain in the vast number of edible species of fungi that may be gathered during all seasons of the year, from one end of the land to the other. The pastures and woodlands literally teem with them; they are, however (sad to say), little known, sadly neglected, or looked upon with unmerited suspicion. The literature, too, of the subject is so small, and the scientific part of the study so extremely difficult to begin, that few persons dare venture to test the qualities of any fungus except the meadow mushroom, and instances are common enough where even this species is rejected. It is apparent that no one can be a sure guide to others who is not himself a "regular fungus *eater*," and that no descriptions can be of value, or drawings of use, unless they are taken with the greatest care from the objects themselves. To the best of my ability, I have attempted this, and wish to persuade others to test the

rare gastronomic qualities of the twenty-nine species figured. The number here described and drawn is only a very small portion of the really valuable species, for I well know that, as a beginner in the study, I made all sorts of mistakes; but, with one exception, I seldom suffered much inconvenience, and I even know instances where confessedly poisonous species have been eaten without ill effect. A little prudence, too often neglected, should be observed in the consumption of fungi: for instance, only young, fresh, and sound specimens should be gathered for the table—for if stale, semi-putrid, and worm-eaten plants are chosen, they are as likely to produce indigestion and inconvenience as meat in a similar condition; they should be eaten in moderation, as a surfeit of sweet mushrooms is as likely to disarrange one's digestive organs as a surfeit of pastry. If these precautions are attended to, and a moderate amount of bread, salt, pepper, and common sense is used, no accident need occur. Let the specimens be cooked as soon as possible after gathering.

Although the following statement may be difficult to understand, it is nevertheless a fact, that many men *do not know what a mushroom is at all, but will eat anything.* I will give an instance: A year or two ago, a man in the north of England cooked a large batch of what he called mushrooms, for supper, and succeeded in poisoning his wife and family to *death,* and himself nearly to death. Some of the things he cooked were sent to me for identi-

fication, and lo! he had gathered everything he could lay his hands upon; large and small, sweet and foul—off horsedung, and rotten palings, and from wherever he could find anything with a stalk and a top to it after the manner of an umbrella. When he had buried his family and recovered his own health, he carelessly walked into a well, and either killed or much damaged himself—I forget which. I mention this to show the sort of men they are who poison themselves with mushrooms. They would poison themselves with anything else if they had the opportunity; would get under a cart-wheel, or do any absurd thing.

The twenty-nine species figured on the "Edible Sheet" are most of them abundant, and instantly recognizable when seen, and every one is a wholesome and delicious object of food, full of aroma and flavour. I invite my readers to partake of the bountiful feast spread in our rich pastures and shady woodlands all over the country for all who care to partake.

"Mushrooms and Toadstools."—These two words embrace the whole of the knowledge possessed by the people at large regarding the immense fungus tribe of this country. If we take the mushroom type of fungus as an example, we have some seven hundred species, all possessing a certain general similitude of form. This has caused many to look upon fungi in common as equivocal productions, difficult or impossible to distinguish as permanent species; but when the study is once entered upon in

earnest, the student will soon perceive that the species, as a rule, are marked with great distinctness and permanency, rendering the recognition of most of them as certain as in any species of flowering plant.

When the study of the whole of the British Fungi is embraced, it is true there are many difficulties in the way, for we find some plants closely approaching the algæ and others the lichens; but when it is only the larger fungi that it is proposed to discriminate, the task is much easier, the number being limited to about twelve hundred species. If the orders AGARICINI and POLYPOREI (including more than eight of the twelve hundred species) are taken as a rough type of the larger fungi, it will be seen that these plants consist principally of a stem and cap. Unlike the flowering plant, the mushroom has no root; but, in place of it, the mycelium, or spawn, from which the fungus springs. Under the top are certain gills or plates, tubes, pores or spines, that bear the spores (or seeds). These spores are distinguished from true seeds by having no embryo, a spore consisting simply of a *two-coated cell with no trace of an embryo*. These spores are microscopic objects of various forms, sizes, and colours, the produce of one plant reaching, it is said, the enormous number of ten millions; when they fall upon the earth, or any suitable matrix, they germinate and form the spawn which eventually produces an infant fungus, the exact counterpart of the original producer of the spores.

We have but one species popularly recognized as

esculent—viz., the common meadow mushroom (*Agaricus campestris*). A very near ally of the "meadow mushroom," and a most delicious species when fresh,—viz., the so-called "horse mushroom" (*Agaricus arvensis*)—is nearly always rejected by country-folks as dangerous. This large and wholesome species is the one commonly sold in Covent Garden Market as the true mushroom, where, if *fresh* specimens can be procured, it is a welcome addition to the table. The fairy-ring Champignon (certainly one of the most exquisitely delicious of all our fungi) is generally neglected, or regarded with great suspicion. Under the name of "champillion," however, it is well known to the weavers and labouring men of the east of London, who may be seen gathering it in considerable numbers any autumn day amongst the short grass of Victoria Park. The fragrant and luscious "Chantarelle," the "rare Morel," and the sweet and tender giant puff-ball, are almost universally *kicked* aside or altogether neglected. Amongst the species *supposed* to be popular is *Agaricus personatus*, said to be sold in Covent Garden Market. I have never seen it there, or heard of its presence. In the West of England and some other places I have heard these plants called "Blue-its" (Blewits), in reference to the blue colour round the upper part of the stem. It is a most substantial and delicious species, and should be better known; but I imagine it is rather uncommon, as I have seldom gathered it; although till quite lately it grew near

Highbury Barn. The St. George's mushroom, springing up on our lawns and pastures in spring (*Agaricus gambosus*), is little known, and very seldom eaten. Closely allied to the *A. personatus*, it is, if possible, more delicious, and may be easily dried for winter use. The semi-popular scaly mushroom, *Agaricus procerus* (except to fungologists), is known to very few, but its esculent properties are of a very high order, and it has the merit of being common. It is said to be sometimes sold in Covent Garden Market, but I have never seen it there, neither do I know anyone who has. With the truffle, the list must close of such fungi as are now and then eaten on exceptional occasions, or may be imperfectly known to a few who have not studied the subject. This species appears in our markets in limited quantities (there being very little demand for it), and realizes from 2*s.* 6*d.* to 5*s.* per pound. The statement that they fetch from 15*s.* to 20*s.* per pound in the London markets is, I believe, incorrect. It must also be remembered that our English truffles do not belong to the same species as the delicious truffles sold in the French markets.

There is no other way of distinguishing a poisonous from an edible fungus than by finding out its name; there is no magic way of saving the trouble of learning, by the insertion of a silver spoon in a stew. If, on tasting a fungus, it burns the tongue like the contact of scalding water (as several species do), the probability is that it is not edible; but if, on the contrary, a species exhales a

delicious and inviting fragrance resembling fruit, spice, or new flour, it is probably worth a trial, and, even *if not* figured on the "Edible Sheet," may be cautiously tried for the table if so desired.

An important character to be observed in fungi is the presence of a volva, or matrix, at the base of the stem (present in figs. 7 and 8, absent in figs. 11 and 12, Poisonous Sheet), and in the annulus, or ring, round the stem towards the top (present in figs. 1 and 7, absent in figs. 14 and 15, Poisonous Sheet). In the determination of species a great deal depends, too, upon the colour of the spores, or seeds. These are readily obtained by removing the stalk of the species to be examined, and placing the top gills lowermost on a piece of glass. In a few hours the spores will be deposited in a thick dust, and will vary (according to the species) from pure white to pink, yellow, red, brown, purple, or jet black. The gills often take their colours from the spores. It is a very great mistake to imagine that the "Sudden Mushroom" grows in a single night. The growth of mushrooms takes a considerable time—often many weeks. The young fungi exist just beneath or upon the surface of the earth in a compressed and narrowed compass. It is during this period that all the cells are formed, and the mushroom itself fashioned; but, being in a squeezed and concentrated form, it is commonly overlooked. On the advent of a wet or humid night, the cells forming the fungus are expanded and stretched out, and the mushroom

is consequently thrust considerably above the surface of the pasture; but, although it is much larger in size, it is no heavier, neither has the substance itself considerably increased. Mushrooms can be artificially propagated from the seeds or spores, but not, generally, during the first season of setting. I have frequently grown the fragile and deliquescent species common on manure from the seeds; but, even when the spawn is once formed, it is often many weeks before the little heads are developed into the true figure of the parents, even in the inky, fugitive and deliquescent species. *Coprinus atramentarius* can be readily grown from spores; if planted about rotten wood in the autumn, the fungi will appear in the late spring, and give two crops a year till the soil is exhausted. I have exhibited a cultivated variety of this species at the meetings of the Royal Horticultural Society.

I have not thought it necessary to repeat long descriptions of how the various species may, or may not, be cooked; it has been done to a great extent before. It is apparent that the addition of "good beef gravy," "a few slices of fowl," "rich veal stuffing," and various other savoury condiments, must occasionally give an extra zest to a dish of mushrooms; but broiled, stewed, or pickled, most species are "always good alike"; indeed, mushrooms, in their whole composition, resemble meat in so remarkable a manner, that any methods of cookery in vogue for delicate preparations of meat, apply with equal force to mushrooms. Mrs. Hussey and Mr. Cooke each give a

large number of *récipés* for preparing these vegetables for the table; and to any reader who may wish to go deeper into the culinary branch of fungology, I must refer them to these authors. I must confess that I consider no preparation of mushrooms can exceed the delicious, inviting, and grateful flavour possessed by mushrooms when simply fried with butter, salt, and pepper.

The various species suitable for storing up for future use—such as the Morel, Champignon, &c.—may be readily dried in a current of air, in a sunny window, or in a cool oven, and then kept in tins, or threaded on strings and kept in a very dry place. Occasionally this process goes a step further, and the mushrooms (of any species) are dried to such an extent as to be readily pulverized; the dust is then known and sold as "mushroom powder." Housewives will now and then pickle mushrooms, by throwing them into scalding vinegar, allowing them to boil for ten minutes or so, and then, by adding cayenne, mace, nutmeg, or spices, adapt them to their various tastes.

The liquor extracted from the various edible mushrooms, under the name of "ketchup," is used in every kitchen, and the mode of preparation is probably known to all. It simply consists of placing the freshly-gathered plants in earthen jars with layers of salt; after a few hours the ketchup exudes in abundance from the fungi; and the process is ultimately completed by mashing the remains of the mushrooms with the hands. It should then be strained and boiled with spice and pepper, or strained

and bottled, and the corked and sealed bottles placed for several hours in boiling water. The ketchup should then be kept in a cool and very dry place.

Nearly every species figured on the Edible Sheet will produce ketchup of good quality, if treated with salt in an earthen jar. The Champignon and Horse Mushroom may be specially referred to as producing this condiment of an excellent quality.

The juice exuded from the truffle in boiling is highly relished by many, as is the deep blood-red juice that runs from the "liver fungus" when cut. This, when seasoned with salt and pepper, and boiled, has a very delicious and stimulating flavour.

Since these notes and the following descriptions were written, my friend Mr. F. C. Penrose, architect, has sent me a list of twenty-eight species he has eaten, most of which are figured on the "Edible Sheet"; the other species mentioned by him and not figured on the sheet are referred to in the descriptions.

The nomenclature of the species is the same with that given by the Rev. M. J. Berkeley in his "Outlines of British Fungology"; the numbers inserted after the *scientific* name refer to my large drawings in the Food Department of the Bethnal Green Museum, where, if the student so desires, he may see dissections of the species.

EDIBLE MUSHROOMS:

ENG.D BY LEITCH'S PROCESS

EDIBLE MUSHROOMS.

Red-fleshed Mushroom. Fig. 1.

(*Agaricus* [*Amanita*] *rubescens.*) 7.

This species is generally abundant in all *woody* places, making its first appearance in early summer and continuing till late in the autumn. It is known by its brown warty top, its white gills, and perfect ring encircling the bulbous stem. It frequently attains a large size, and its whole substance, when touched, bruised, or broken, *becomes sienna-red.* This species is one of the most beautiful as well as valuable of all the British Agarics. If care be taken to select young and fresh specimens only, when prepared for the table, it will prove a very light and delicate addition to any meal. Mr. Berkeley does not subscribe to the excellence of this species; but as far as my own experience and that of many friends go, I *well know it to be delicious and perfectly wholesome.* Mr. Penrose writes me: "*Old specimens* are very indigestible." This I imagine contains the whole secret of its questionable name amongst some who have (or have not) tried it.

Edible Tube-Mushroom. Fig. 2.

(*Boletus edulis.*) 610.

Frequently attaining enormous dimensions, and first appearing during the summer or early autumn rains, this fungus is one of our commonest and most delicious species. Like the last, it grows in woods and forests, and may be at once known by the following characters: it is generally very stout, with a smooth, umber, cushion-shaped top, tubes at first white and ultimately pale yellowish-green; stem whitish-brown, marked with a *minute* white and very elegant reticulated network, principally near the top of the ringless stem; when cut or broken, the fleshy body of the plant continues pure white. In this, as in every other species, sound young specimens should be selected, and it is perhaps as well to scrape away the tubes before preparation for the table. Whether boiled, stewed with salt, pepper, and butter, fried, or roasted with onions and butter, this species proves itself one of the most delicious and tender objects of food ever submitted to the operation of cooking. It is not the plant referred to by the ancient Roman satiric poets; but at Rome (in the present day) this species, in company with peaches and *Agaricus cæsareus*, is sold at every street corner, our common meadow mushroom, though abundant enough there, being disregarded.

B. scaber (615) is sometimes eaten. From personal

experience, Mr. Penrose says: "Young specimens are good—old, very flat."

B. æstivalis (612) is of rare excellence; it appears in the early summer, sometimes in abundance, at Highgate.

Before I properly knew *B. edulis*, I ate all sorts of *Boleti* in mistake for it, notably *B. chrysenteron*.

Variable Mushroom. Fig. 3.

(*Russula heterophylla.*) 522.

This is a very common species in woods, known by its sweet nutty taste; white, rigid, sometimes branched, gills; white flesh; white, solid, fleshy, ringless stem; and firm top, variable in colour, which is at first convex, at last concave. The colour of the thin viscid skin covering the top of the fungus is commonly subdued green, but (as its name indicates) the colour is variable: at one time it approaches greenish-yellow, or lilac, and at another grey or obscure purple; but it is so common and well marked that, with the assistance of the figure, there is no fear of mistaking it for anything else. There is a *stouter*, more rigid plant, with forked gills and a bitter taste (*R. furcata*), that had better be avoided. A third green *Russula* (*R. virescens*), immediately known by its rigid substance, its top broken up into large rough emerald-green patches, and with no viscid skin, is an excellent addition to the table.

Russula heterophylla is highly esteemed by many, and is certainly one of the sweetest and mildest species we have. It is excellent stewed in an oven, with salt, pepper, and butter, between two dishes.

Candle Clavaria. Fig. 4.

(*Clavaria vermiculata.*) 843.

This species is frequently very common in pastures and meadows, on lawns and by roadsides, in the wet weather of autumn. It grows in bundles; is brittle; the clubs are pointed and very *white*. If a few bundles be gathered, cleaned, and stewed or broiled, they will form a novel and tasty adjunct to any dish, and when once tried will be eagerly sought for in future. Coloured *Clavarias* had better remain where found growing, as their gastronomic qualities are doubtful.

Meadow Mushroom. Fig. 5.

(*Agaricus* [*Psalliota*] *campestris.*) 316.

A large volume might be written about this species, the only one popularly recognized in this country as edible. It is common in rich meadows everywhere, perhaps all over the world, and varies in a remarkable manner, by imperceptible gradations approaching and blending with the horse mushroom, fig. 9: its varieties are distinguished by five or six different names, but the characters run into each other so much, and are frequently so slight and

transient, that they are often difficult to appreciate. One form is found growing in woods (*A. silvicola*). I have often gathered it in the Highgate woods, but from its suspicious aspect would not advise its general use; though I have frequently eaten it with no ill effect. There is another most beautiful variety I have frequently gathered in the meadows on the south side of Lord Mansfield's woods at Hampstead (*A. pratensis*), with a very hairy top, the hairs grouped in patches like ermine. When broken, the flesh changes to a pale but vivid rose-colour. If possible, this form exceeds in excellence and piquancy of flavour the common form of our pastures. Several very distinct varieties are cultivated in beds and stoves, which occasionally appear in our markets; but none exceed our delicious indigenous meadow mushroom, as found in the autumn in rich pastures.

Bonâ fide mushrooms are known by their beautiful pink gills (in which state they are best fit for use), ultimately becoming deep brown, and not reaching the stem, which stem carries a well-marked white woolly ring; by the very fleshy down-covered top, the delicious and enticing fragrance and the firm white flesh, sometimes inclined to pink when cut or broken: the plant is so well known and so highly esteemed in this country that it is hardly necessary to say a word in its favour, or repeat methods of preparing it for the table. Butter, spice, parsley, sweet herbs, salt, pepper, and sometimes the

squeeze of a lemon, appear to be in the greatest request; but whether boiled, pickled, stewed, fried, or prepared in any other way, it is equally delicious in all. It seldom appears in Covent Garden Market; the dealers there are content to find a sale, at a high price, for stale horse mushrooms. Much has been written at various times regarding the apocryphal "inspector of the Roman markets," who consigns mushrooms to the Tiber, but the facts have been much exaggerated. *Agaricus campestris* is not generally appreciated in Italy, is seldom eaten, and never appears in the markets, for the simple reason that there would be no sale for it. There is an edict in existence ordering certain fungi to be thrown into the Tiber, but it is now, and has long been, altogether effete; and whilst there is an abundance of *A. cæsareus* (by some said to be the most delicious of all fungi) for the markets of Italy, it is not to be expected that the consumption of this latter plant will be given up for another and less-known species. It is probable that *Agaricus cæsareus* may one day be found in the southern parts of this country; if so, it will be known by its smooth *wartless* crimson top, its yellow gills, and stout white stem springing from a large wrapper at the base (like fig. 7, Poisonous Sheet).

The ketchup made from the meadow mushroom is, not without reason, looked upon as the best, although it may be obtained from many other species. I have seen persons gathering fungi for ketchup (to be sold in the markets),

putting almost anything into their baskets so long as the species appeared likely to yield a black juice.

I have known cows to be very fond of mushrooms; and a friend of mine in the country (who has more than once seen his cows, in the morning, go from mushroom to mushroom till all are consumed) goes regularly over his pastures every morning in the autumn, before the cattle are turned in, to secure the first gathering of the fungus crop. Sheep, squirrels, birds, and many other animals commonly eat raw mushrooms and other fungi.

Yellow-gilled Mushroom. Fig. 6.

(*Russula alutacea.*) 536.

This is one of the principal ornaments of our woods in summer and autumn, and is readily recognized by its thick gills, which are of a subdued but decided buff-yellow colour, and the somewhat viscid red, or pale crimson top. The stem is stout, white or rose-colour, ringless, and solid; the whole plant fleshy, and frequently very large. The gills immediately distinguish it from the emetic mushroom (fig. 21, Poisonous Sheet), as in the latter they are pure white, and always remain so; there are, too, other great differences between the two species noted in the description of the emetic mushroom.

The taste of *Russula alutacea* is particularly agreeable and mild, and, when well prepared for the table, few

species prove more satisfactory to the consumer. Dr. Badham (by an error) takes some exception to it.

Furrowed Clavaria. Fig. 7.

(*Clavaria rugosa.*) 827.

This species, common in woody places, is usually pure white, pale grey, or shaded with cream-colour; the clubs are irregular, somewhat wrinkled and tough. Treated in the same way as *C. vermiculata*, it will prove equally acceptable, agreeable, and novel. All the white-spored species are believed to be esculent.

I have not tried *C. coralloides*, an allied species, which is greatly branched, but it is esteemed as an esculent.

Chantarelle. Fig. 8.

(*Cantharellus cibarius.*) 539.

The chantarelle cannot be called very common, but it is abundant in many districts; its solid, ringless stem, fleshy body, thick swollen veins in the place of gills, and brilliant yellow colour, at once serve to distinguish it from every other species. "Its smell," says Berkeley, "is like that of ripe apricots." Sometimes (as I have frequently seen in Epping Forest and elsewhere) immense numbers grow together; at other times they are very few. Chantarelles often cover a hedge-bank where there are trees close by; and wherever they do appear they must enlist the admiration of the passer-by, for they look as if made of

solid gold. When cooked, this species has a rich mushroom-like flavour peculiarly its own, and may be prepared for the table in various ways, according to the fancy of the consumer: but being big and solid, it should be cut up; and, if stewed, allowed to simmer gently, and be served with pepper, salt, and butter. There is a curious, thin, pale, slender variety, found growing in pastures about old stumps, which I have never eaten, and from its curious aspect, habitat, and comparative rarity, I think it hardly worth the experiment, but it may be esculent. There is a very pale, almost white, variety of the chantarelle, and one quite without the apricot odour.

Horse Mushroom. Fig. 9.

(*Agaricus* [*Psalliota*] *arvensis.*) 317.

This species, the *A. exquisitus* of Dr. Badham, is very nearly allied to the meadow mushroom, and frequently grows with it, but it is coarser, and has not the same delicious flavour. It is usually much larger, often attaining enormous dimensions; and it turns a brownish-yellow as soon as broken or bruised. The top in good specimens is smooth and snowy white; the gills are not the pure pink of the meadow mushroom, but dirty brownish-white, ultimately becoming brown black. It has a big, ragged, floccose ring, and its pithy stem is inclined to be hollow. It is *the* species exposed for sale in Covent Garden Market. Indeed, after knowing the market for many years, I have

rarely seen any other species there; when the true mushroom, however, *is* there, it is frequently mingled with horse mushrooms, which seems to show that the dealers do not know one from the other. In the wet days of autumn, children, idlers, and beggars go a few miles from town into the meadows to gather whatever they can find in the mushroom line; they then bring their dirty stock to market, where it is sold to fashionable purchasers; stale, vapid, and with no taste but a bad one.

When young and fresh, the horse mushroom is a most desirable addition to the bill of fare; it yields an abundant gravy, and the flesh is firm and delicious. It is a valuable plant when freshly gathered; but when stale it becomes tough and leathery, and without aroma or juice.

There is a curious large, brown, hairy variety, of rather uncommon occurrence, similar to the hairy variety of the meadow mushroom, the *A. villaticus* of Dr. Badham (given in error by the Rev. M. J. Berkeley as a variety of the meadow mushroom, and since corrected by him). It is a splendid plant, but, I think, very rare. I have only seen it once.

There is also another large, sienna-red, rank-looking variety, I have often gathered in certain situations under trees, &c., that few would be tempted to eat; it is probably a luxuriant, overgrown, disagreeable thing, that would give one a stomach-ache, and in place of better species is not worth experimenting upon.

Many country-folks readily distinguish the meadow from the horse mushroom, and have a great antipathy to the latter, although they are always willing to put it into the jar as one of the ingredients of ketchup. Opinions appear to differ greatly regarding the excellence of this species. Mr. Penrose writes—"I think young, and especially button specimens of this, very indigestible; until they are well opened out, they are unfit for use." Such, however, I must say, is not my experience of button specimens.

There is a strong odour attached both to this fungus and its spawn, the ground just below the surface being frequently white with the latter. If horsedung be kicked aside in a rich pasture frequented by graminivorous animals, the earth will frequently present a snowy whiteness from the spawn of this species, from which the young individuals may be seen springing up. The specimen figured is not fully expanded, but is represented in the condition best for the table.

I once saw a sheep eat a large specimen with great apparent gusto, although the fungus was full of maggots.

Fir-Cone Mushroom. Fig. 10.

(*Agaricus* [*Amanita*] *strobiliformis.*) 5.

If colour is left out of the question, no finer species of Agaric than this one grows in the country. It attains a very large size in well-grown specimens, but is rare. I

have but once found it, and then it was sprinkled pretty plentifully along the borders of a fir plantation in Hampshire, not far from Winchester. The solid compact flesh, fine ring, bulbous stem, and patched top, well mark this species. The persistent patches on the top are not very unlike the scales of a fir-cone, hence its specific name; the gills do not reach the stem.

Its undisputed esculent qualities are of a high order, and it is to be regretted that its comparative rarity must prevent its being so well known and appreciated as its merits deserve. The specimen figured is not fully expanded, at which time most fungi are fuller of flavour.

A very common species of *Amanita* (*A. vaginatus*), said to be esculent (and eaten by Mr. Penrose), I have not tried.

Orange-Milk Mushroom. Fig. 11.

(*Lactarius deliciosus.*) 502.

There are but few species of the *Lactarius*, or milk-bearing group, that can be recommended for culinary purposes. This species, however, and fig. 26 are exceptions, and there can be no fear of mistaking the orange-milk mushroom for any other species. It is at once known by the orange-coloured milk which it exudes on being bruised, cut, or broken; this milk soon becoming dull green. The plant is solid, almost corky, and the richly-coloured top is commonly, but not always, marked with deeper

coloured zones, as in the figure. It always grows in fir plantations, and I have found it on the Kentish Town side of London, almost before the smoke of the city is left behind. It is somewhat local, although at times it grows in large numbers, but always amongst firs. Like several other excellent species, the taste is at times rather sharp when raw.

When cooked with taste and care, it is one of the greatest delicacies of the vegetable kingdom, its flesh being more crisp and solid than many species.

One or two milk-mushrooms, which had better be avoided, bear brimstone-coloured milk, or milk which changes to a brimstone or burnt sienna colour; they are figured on the Poisonous Sheet, figs. 20 and 28; but *Lactarius deliciosus* can never be mistaken for any other plant if the deep orange (or red) and ultimately green milk is observed. Figs. 20 and 28 are not peculiar to fir woods.

Purple Cobweb-Mushroom. Fig. 12.

(*Cortinarius* [*Inoloma*] *violaceus.*) 420.

This is one of the best-marked of all edible fungi, and at the same time one of the very best for esculent purposes. It cannot be called common, although I have often found it close to London. It appears to principally grow in *open places* in woods. When young, it looks like a bright purple silk ball in the grass, and when gathered the

bulbous stem is almost as large as the top itself. There is always a cottony web, like cobweb (which represents the ring), stretching from the edge of the pileus to the stem, and this web soon takes its colour from the red spores, which are plentifully produced, colouring the gills and part of the stalk a red colour, very similar in tint to the rust of iron; when cut, the flesh is of a subdued lilac tint, and firm.

Broiled with a steak, this is a most exquisitely rich luxury, much resembling the meadow mushroom in flavour, but altogether firmer, and more meaty and substantial. I am always glad to find this species, and it is next to impossible to mistake it for any other.

Maned Mushroom. Fig. 13.

(*Coprinus comatus.*) 374.

This fungus should be gathered for the table when the gills are white or just changing to pink, and before they are black, in which latter state (as the plant is ultimately deliquescent), it is unfit for food. If I had my choice, I think there is no species I should prefer before this one; it is singularly rich, tender, and delicious. Those found growing amongst short grass, on lawns, or by roadsides, are best; there is one form of it which grows in dirty, sticky places, in brickfields, dustyards, &c., that I should not like to recommend. When gathered in a rich pasture, it is of snowy whiteness, the top being somewhat

fleshy, cylindrical, and broken up into white clothy patches; there is a white, powdery, fragile ring round the hollow stem, which is soon broken, and falls away.

Coprinus comatus—the "Agaric of Civilization"—is common in all the London parks in October. A closely-allied species, found at the base of old stumps and palings, and on the ground (*C. atramentarius*), is sometimes eaten. I have not tried it, but Mr. Penrose and several friends have a word to say in its favour.

Scaly Mushroom. Fig. 14.

(*Agaricus* [*Lepiota*] *procerus.*) 13.

Agaricus procerus everywhere enjoys a good reputation, and as it is far from uncommon, the lovers of fungi can generally make sure of this species for a treat. When or at what time it was ever sold at Covent Garden Market, I do not know; for although more than one book says it is there displayed for sale, I never saw, or could hear of it. It grows in pastures, and is known by its long bulbous spotted stem, by the ring that will slip up and down, by the very scaly top, and the gills far removed from the insertion of the stalk. When the stem is removed, a large hollow socket remains,—just the place to insert a large piece of butter in the broiling process, when, with pepper and salt, it forms a dish that if once tried must please the most fastidious. I think the plants gathered in the pas-

tures are best. I have sometimes found most enormous specimens growing in fir plantations, but I do not think them equal for the table to the plants which abound in rich meadows. The flesh is a little inclined to change colour; and there is an allied species, *A. rachodes*, much more *robust*, but often smaller, that changes colour to a deep yellowish-brown when broken, and has a smooth stem, that cannot be so highly recommended, if it even be wholesome. I have generally found it growing on dark and shady hedge-banks, and know several persons who have eaten it and speak well of it.

Plum Mushroom. Fig. 15.

(*Agaricus* [*Clitopilus*] *prunulus.*) 225.

The pure pink gills running considerably down the ringless stem, and the fresh and fragrant smell of meal, at once distinguish this species from all others. It grows in and near woods in the autumn, evidently giving a preference to the open places and borders; the solid stem and the very fleshy top are white, or some shade of very pale grey. Dr. Badham and some other authors refer to our plant under the name of *A. orcellus*, and some botanists consider the true "orcellus" and the true "prunulus" distinct but closely allied species. There is also a vexatious confusion between this species and fig. 19, St. George's Mushroom (*A. gambosus*). This latter

is a spring plant, and is frequently and erroneously called *A. prunulus*. They have no characters in common, and, in fact, more distinct Agarics do not exist.

Returning to the true Plum Mushroom (fig. 15), I have only to say that, however prepared, it is most excellent; the flesh is firm and juicy, and full of flavour; and whether broiled, stewed, or however prepared, it is a most delicious morsel. I have never seen it in very large quantities; it is scattered over the woods north of London, but not in profusion.

Curled Helvella. Fig. 16.

(*Helvella crispa.*) 1673.

This singular-looking plant is nearly allied to the true Morel, and closely resembles it in flavour. It is hardly possible to mistake it for any other species, unless it be the next, which has a black top, and is rarer (*H. lacunosa*), 1674, and also esculent. *H. crispa* generally grows on shady banks, or on the edges of pastures and lawns, and amongst dead leaves, under the shade of trees. I have only once seen it near London, and that was in the neighbourhood of Caen Wood, Hampstead; sometimes, however, I have found it in immense quantities (numbering hundreds of specimens) on rich sloping banks. The stem is full of wrinkles and holes, and the top lobed and deflexed in a very singular and irregular manner.

If stewed slowly and with care, this species will prove very pleasant eating, and will exude a delicious gravy. The flesh is firm and crisp, and greatly resembles the Morel. It may be easily dried for future use in a current of air, or in a dry place; in this state, specimens are at times kept threaded on strings, ready to impart their truly delicious flavour to stews and gravies. (See description of fig. 20.)

I once saw a batch of specimens which had suddenly sprung up close to some ants' nests, and thousands of the ants were swarming over and examining the fungi, and running in and out of the holes in the stems in the most amusing manner.

Oyster Mushroom. Fig. 17.

(*Agaricus* [*Pleurotus*] *ostreatus.*) 179.

I have always found this far from uncommon species growing on old *elm* trunks, although it is not at all particular as to its habitat, often appearing on laburnum, apple, ash, &c. It usually grows in large masses, one plant above another, forming a very handsome object on old tree-stems. The gills *and spores are white,* the former running down the stem, and the top dingy—sometimes nearly white; at others, full brown. An allied species, *A. euosmus,* with pale lilac spores, and a scent like that of Tarragon (*Artemisia dracunculus*), is "not esculent,"

and is said to grow in the spring. I commonly find the former growing in spring, although it is said usually to grow late in the autumn, or winter.

Perhaps a taste for this species has to be acquired; but though it is without doubt edible, I have never thought well of it. The flesh possesses a certain amount of firmness, and produces an abundant and savoury juice; but I am inclined to place it as the species of least value for culinary purposes. It has, however, been highly recommended by some; and a dish of this species stewed before a very hot fire has proved as enjoyable and nourishing "as half a pound of fresh meat." Tastes are allowed to differ; and perhaps the opinion of some of my readers may differ from mine if they try this species, which, from its peculiar appearance, there is little chance of mistaking for any other.

Lilac-stemmed Mushroom. Fig. 18.

(*Agaricus* [*Tricholoma*] *personatus.*) 65.

Although this plant at times appears in pastures near London, it is not very common. It is very nearly allied to and extremely like the next species (fig. 19), from which it is principally distinguished by its growing in the autumn, and having a lilac band round the upper part of the stem. This lilac stain, however, is not invariably present; and a species that is altogether (stem and top

too) lilac, or full violet, should be avoided (*A. nudus*). The Purple Cobweb Mushroom (fig. 12) is easily distinguished by its rust of iron gills. In *Agaricus personatus* they are white—sometimes dirty white; the solid ringless stem is rather rough; and the top is smooth, and exceedingly firm and fleshy; the plant grows late in the autumn, on downs, and in rich, short pastures.

Opinions vary a little regarding the value of this species for gastronomic purposes; but I think, if young plants are gathered, in *dry weather*, and carefully broiled or stewed, few fungi will prove more truly delicious. From my own experience, I have the highest opinion of it; but the plant readily absorbs moisture, and during wet weather is heavy and of little worth.

As these pages are passing through the press, my friend, Mr. Thomas Moore, of the Botanic Garden, Chelsea, informs me that this autumn (1874) he saw large quantities of *A. personatus* exposed for sale in the markets of Nottingham, under the name of "blue-bottoms," the vendors stating the fungus to be "as good as mushrooms."

St. George's Mushroom. Fig. 19.

(*Agaricus* [*Tricholoma*] *gambosus.*) 62.

The St. George's Mushroom is fit for any saint in the calendar. It comes up in the spring, near St. George's Day, when few other species are to be found. It is in

every part almost white, or with a slight inclination to ochre; but sometimes the colour is a little fuller. The stem and top are singularly firm, fleshy, and solid, and the latter, in hot weather is inclined to split. It grows in rings, on rich lawns and pastures, and has a strong, fragrant, enticing odour.

It is a little like *A. crustuliniformis* (fig. 24, Poisonous Sheet), which, however, differs in various ways, principally in discharging *brown spores* instead of *white*, as in *A. gambosus*. The poisonous plant has an odour like the flowers of laurel, and *grows in woods in the autumn*.

Few species are more substantial and delightful for the table. I (with many others) look upon it with unusual favour, as one of the rarest delicacies of the vegetable kingdom. Like the last, it is absorbent of water, and should be gathered in dry weather. I think it is local, and certainly uncommon near London.

It is sometimes erroneously referred to under the name of *A. prunulus*.

Edible Morel. Fig. 20.

(*Morchella esculenta.*) 1668.

I know a wood in Bedfordshire called "Morel Wood," where, in the spring, this rare and delicious fungus *abounds*. It is generally far from common, and occurs, perhaps, in greater abundance in the south of England.

It appears, however, to be pretty well known and in general request amongst housewives, north and south, for the truly exquisite flavour it imparts to gravies and made dishes; and being readily dried, it can be kept for immediate use at any season of the year. The figure shows exactly what the Morel is like; the honeycombed pitted top is *hollow*, and the almost smooth stem partly so. It yields a delicious ketchup; and the hollow top, well stuffed with minced veal, and dressed between slices of bacon, is a dish of rare and exquisite flavour.

This notice of the Morel would not be complete without reference to the "Giant Morel" (*Morchella crassipes*) found a few years ago in this country, for the first time, by my friend Miss Lott, of Barton Hall, South Devon. This species, which attains enormous dimensions, is not quite so crisp or rapidly dried as the last, but, as an object of food, is fully as exquisite for flavouring sauces, and other purposes.

Liver Fungus. Fig. 21.

(*Fistulina hepatica.*) 716.

This singular fungus is not always *common*. It generally grows on the trunks of old oaks. I have seen it in immense quantities on the ancient oaks of Sherwood Forest, whilst at times oak districts appear to be singularly free from its presence. It externally resembles a very large tongue or a huge piece of liver lolling out from

the tree, and when incised a red juice plentifully exudes. It is truly "a vegetable beefsteak," for the taste resembles meat in a remarkable manner. A good way of preparing it is to cut it up in thin slices and broil it with a steak, and dress with butter, salt, and pepper. There is a slight but very perceptible *acid* flavour with it, which gives considerable zest and piquancy to a dish of the "vegetable beefsteak," as it is called, rendering it a "treat for an epicure."

It rarely grows on any tree but the oak, but I have seen it on the ash, beech, and other trees.

Spine-bearing Mushroom. Fig. 22.

(*Hydnum repandum.*) 718.

There is little fear of mistaking this for any other species, as the awl-shaped spines on the under surface are a characteristic feature of the small genus, *Hydnum*. All the species of any size enjoy a good character; *Hydnum repandum* being the only *common* plant of the genus.

It is sometimes most abundant in the few woody places remaining at the north of London, and may often be found on shady roadsides in the humid weather of autumn.

Its taste is slightly pungent when uncooked; but after being submitted to the culinary processes of the kitchen, it affords a charming addition to the table. Its flesh is very firm and delicious; yet, being somewhat dry (like

fig. 11), the addition of some sauce or gravy lends an additional relish to the stew.

The colour of the fungus is exactly like that of a cracknel; the smooth top is frequently irregular, and the pure solid stem often out of the centre. The top sometimes partakes of a warmer, almost sienna, colouring.

Viscid White Mushroom. Fig. 23.

(*Hygrophorus virgineus.*) 470.

This species, exquisite in form and flavour, is one of the prettiest ornaments of our lawns, downs, and short pastures at the fall of the year. In these situations it may be found in every part of the kingdom. It is essentially *waxy*, and feels and looks precisely as if made of the purest virgin wax. The stem is firm, stuffed, and attenuated, and the gills (singularly distant from each other) run far down the stem; it changes colour a little when getting old, at which time it is unfit for culinary purposes.

A batch of fresh specimens, broiled or stewed with taste and care, will prove agreeable, succulent, and flavorous eating, and may sometimes be obtained when other species are not to be had.

Several allied species enjoy the reputation of being esculent, notably *H. pratensis* and *H. niveus;* and my friend Mr. F. C. Penrose has eaten, and speaks favourably

of, *H. psittacinus*—a highly ornamental yellow species, with a green stem, sometimes common enough in rich pastures (and generally *said* to be very suspicious).

Clouded Mushroom. Fig. 24.

(*Agaricus* [*Clitocybe*] *nebularis.*) 73.

Common (in certain places), but rare near London. This species appears late in the autumn and generally grows on dead leaves in moist places, principally on the borders of woods. The top is lead-colour or grey, at first *clouded* grey,—hence its name; the stem is stout, elastic, and striate, with the *white* gills running considerably down the ringless stem, in the manner shown in the drawing.

The gastronomic excellences of the species are well known. When gathered, it has a wholesome and powerful odour; and when cooked, the firm and fragrant flesh has a particularly agreeable and palatable taste.

Giant Puff-ball. Fig. 25.

(*Lycoperdon giganteum.*) 930.

This species of puff-ball is not always a "giant," and may frequently be found no larger than an apple. It is somewhat local, and I think only attains gigantic proportions in certain situations. I have, for instance, seen specimens growing in rich pastures in Nottinghamshire,

so much larger than the specimen figured that the latter would appear a perfect *dwarf* beside them. It may be found, in some of the meadows near Highgate and Hampstead, quite as big as our figure; but indeed there is little fear of a mistake, if attention is paid to the smooth skin, —like white kid leather.

Young specimens must be chosen for cooking, such as are firm and snow-white, inside and out; for when the fungus is getting ripe and yellowish, and dusty inside, or when it is saturated with rain and the interior is a mass of yellow decomposition, of course it must be rejected.

It is known by its large size, its pure white colour, and its *smooth skin.*

To cook this species satisfactorily and well, cut the specimens up into slices of half an inch in thickness, remove the skin or bark, dip the slices into yolk of egg, and fry in fresh butter. It will then eat with a delicate and delicious flavour; or served with jam or jelly it is an excellent substitute for pastry.

Pear Milk-Mushroom. Fig. 26.

(*Lactarius volemum.*) 508.

This species is recognized by its very rich coloration, firm flesh, mild taste, white milk (changing to a dull dark umber-colour where the plant is bruised or broken),

white gills becoming warm yellow-buff, and the full sienna top; the stem is solid, and the plant grows in woods.

The taste of this plant, when fried, has aptly been compared to lamb's kidney, and resembles in flavour the only other edible Lactarius—viz. *L. deliciosus,* fig. 11. It is a rare species in this country.

White Fir-wood Mushroom. Fig. 27.

(*Agaricus* [*Clitocybe*] *dealbatus.*) 80.

This pretty little fungus commonly grows in, and about the neighbourhood of, fir plantations, but will occasionally come up elsewhere. Its top is white, smooth, and *exceedingly like ivory.* It is shining, waved, fleshy, and inclined to be irregular; the gills are thin, white, and run down the stem.

When clean, young, and fresh specimens are broiled with butter, it is a delicacy of the very highest degree,—at once tender, juicy, and delightful. Its charming flavour is exceeded by very few other fungi.

Several allied species are very good, notably *Agaricus odorus,* which exhales a most delicious odour of melilot.

I used to eat all sorts of things for this species before I properly knew it, and never felt the worse for the mistakes I made. It would be useless to enumerate them all here, without figures and descriptions, but one was the common *Agaricus subpulverulentus.*

Fairy-ring Champignon. Fig. 28.

(*Marasmius oreades.*) 553.

If possible, this species is better than the last, and no recommendation can be too strong for it. The exquisitely rich and delicious flavour of this plant when broiled with butter must be tasted to be understood. It is firmer than the meadow mushroom, and, whilst having its peculiar aroma, it possesses it in a concentrated form. Even Mr. Berkeley, who would be the last man in the world to subscribe to a doubtful species, says, "*it is the very best of all our fungi.*" It may be pickled, used for ketchup, or dried for future use.

Marasmius oreades grows in rings in short pastures, on downs, and by roadsides everywhere (*but never in woods*). It is somewhat tough, the solid stem particularly so, the gills wide apart, and cream-coloured.

This species has no downy hairs at the base of the stem. Certain other species of *Marasmius*, frequently found growing on dead leaves in woods, and possessing this hairy down, are to be avoided. There is a poisonous plant sometimes found in similar situations, and often *with* the Fairy-Ring Champignon (*M. urens*), fig. 30, Poisonous Sheet. I once tested its qualities (by accident). See description.

Truffle. Fig. 29.

(*Tuber æstivum.*) 1916.

The truffle is a subterranean fungus, invariably found under trees, often just appearing above the surface of the ground, and occasionally exposed for sale in our markets, where it will realize at times as much as 5*s.* per pound. The truffle is esteemed by many as the most delicious object of food in the whole vegetable kingdom, and by others it is looked upon with aversion or positive disgust. The odour is very powerful, and is relished by some individuals, and very much disliked by others. It is looked upon as a great delicacy boiled, or simply roasted in hot ashes.

Besides the truffle sold in Covent Garden Market, there are many other species found in this country, of various forms and qualities. *T. æstivum* varies much in size, is irregular in shape, black, rough, and warted.

I must confess that, at first, I regarded the truffle with loathing; but now I have learned to greatly esteem it. It makes a capital ingredient for gravies, stuffings, and meat pies.

It is frequently referred to under the name of *T. cibarium.*

POISONOUS MUSHROOMS.

Bundled Stump-Mushroom. Fig. 1.

(*Agaricus* [*Hypholoma*] *fascicularis.*) 331.

This species occurs everywhere at the bases of old stumps, always in groups. The stem is hollow, and the gills are greenish and sub-deliquescent. There is a heavy odour attached to it, and the taste is bitter and repulsive.

Red Juice-Mushroom. Fig. 2.

(*Hygrophorus conicus.*) 482.

This truly handsome fungus is common in pastures and roadsides. It turns purple-black when bruised, broken, or old, and it has a strong and very forbidding odour.

It is of a succulent substance, and is not unfrequently a brilliant yellow or deep orange, in place of crimson or scarlet.

POISONOUS MUSHROOMS:

ENG.D BY LEITCHS PROCESS

Trellised Clathrus. Fig. 3.

(*Clathrus cancellatus.*) 917.

I am indebted to the late Mrs. Gulson, of Eastcliff, near Teignmouth, Devon, for the original plant from which this figure was taken. It is of extreme beauty and rarity, seldom occurring in this country, but common enough in the south of Europe.

The fetor exhaled from this species is highly disagreeable, and can be compared with nothing but itself. It is so horribly repulsive and loathsome as to make a mere examination of the plant a matter of the greatest difficulty. In the young state the odour is less strong, or altogether absent.

Fetid Leather-fungus. Fig. 4.

(*Thelephora palmata.*) 760.

This soft fungus bears a distant resemblance to some species of Clavaria. It is uncommon, grows upon the ground, and possesses a very disagreeable odour.

Olive-gilled Mushroom. Fig. 5.

(*Agaricus* [*Hypholoma*] *sublateritius.* 328.

This plant is allied to fig. 1, and, like it, grows upon old stumps in woods, and has, too, a disagreeable smell.

Astringent Mushroom. Fig. 6.

(*Panus stypticus.*) 582.

Is very common on old dead trees and stumps in woods, and had better be avoided.

Matrix-bearing Mushroom. Fig. 7.

(*Agaricus* [*Amanita*] *Phalloides*). 2.

Common everywhere in woods; this handsome Agaric is known to be highly dangerous. It is allied to fig. 8, as will be seen by glancing at the figures.

All parts are nearly white, excepting the top, which generally takes some pale shade of subdued yellow or green.

Poisonous Spring Mushroom. Fig. 8.

(*Agaricus* [*Amanita*] *vernus.*) 1.

Belonging to a very suspicious group, this Agaric is supposed to be very poisonous. It grows in woods, *in the spring*, and is white in all its parts.

It is rare, but I have found it close to London.

Magpie Mushroom. Fig. 9.

(*Coprinus picaceus.*) 379.

This, too, is equally rare, though in some places, as in the Herefordshire woods, it is by no means infrequent.

It is a very handsome but suspicious-looking plant, with the top broken up into large patches of black and white. It grows on roadsides, and has a disagreeable odour.

Gloomy Tube-Mushroom. Fig. 10.
(*Boletus luridus.*) 607.

This is one of the handsomest ornaments of our woods and woody places. The prevailing tint is umber, relieved on the under surface by bright red, sometimes approaching crimson, or even vermilion; when broken or bruised it rapidly changes colour to blue. It is very common in all places where there are trees, and often comes up early in the year. It is probably more or less poisonous, though I have known it to be eaten without *fatal* effects.

Mr. Penrose once found a specimen as large as a milking-stool, exactly three feet in circumference.

Griping Milk-Mushroom. Fig. 11.
(*Lactarius torminosus.*) 488.

This dangerous fungus is at once known by the hairy margin of the top, which is rolled inwards. The milk that exudes when the plant is broken is acrid and biting, and does not change colour as does fig. 11, Edible Sheet, and figs. 20 and 28, Poisonous Sheet.

Though said to be common, I think it is somewhat rare; it now and then occurs in solitary specimens in the woods and open places near London.

Ruddy Milk-Mushroom. Fig. 12.

(*Lactarius rufus.*) 512.

This is one of the most deadly of all British fungi, and generally grows in fir woods; the white milk is singularly acrid and corrosive, which is perhaps its best distinguishing mark. It bears some resemblance to fig. 26, Edible Sheet, but the milk of the *L. volemum* is mild, and changes colour to dark brown when exposed to the action of the air; whilst in *L. rufus* it remains white, and the milk is highly pungent.

Fly Mushroom. Fig. 13.

(*Agaricus* [*Amanita*] *muscarius.*) 3.

Few fungi can exceed this well-known species in beauty. It is somewhat local, and loves birch woods, where it sometimes makes the very ground almost scarlet with its profuse growth. Sometimes the top is deep yellow or orange, but it is usually brilliant scarlet; if the top skin is stripped off, the flesh just beneath is seen to be bright yellow, and the rest of the flesh white. It is allied to fig. 1, Edible Sheet, but the flesh of the latter is not yellow under the skin; and *A. rubescens turns reddish* in every part as soon as bruised or broken.

Poisonous Forest Mushroom. Fig. 14.

(*Agaricus* [*Entoloma*] *sinuatus.*) 212.

Without doubt, this is a very poisonous plant, for I

once cooked a very small piece of a specimen for luncheon, and was very nearly poisoned to death thereby.

I did not eat a twentieth part of the specimen gathered —I am sure not so much as a quarter of an ounce—and the taste was by no means disagreeable. But mark the result. (It must be borne in mind, too, that though I fell so dangerously ill, I never till the last moment *suspected the fungus.* Such a confirmed toadstool-eater was I, that I laid my symptoms to anything but the true cause.)

About a quarter of an hour after luncheon *I left home,* and was immediately overtaken by a strange nervous, gloomy, low-spirited feeling quite new to me. Soon a severe headache added its charms to my feelings, and then swimming of the brain commenced, with violent pains in the stomach.

I had now great difficulty to keep upon my legs at all; my senses all appeared leaving me, and every object appeared to be moving with *death-like stillness* from side to side, up and down, or round and round.

More dead than alive, I soon returned home, and was horrified to find *two others* (whom I had invited to partake of my repast) in exactly the same condition as myself. At this moment, and not before, I thought of *Agaricus sinuatus.* These two others had suffered precisely as I had done, and we all three were apparently dying fast. They, however, were attacked by violent vomiting, which

I imagine helped to hasten their recovery; for after a few days of sickness and nausea (with medical assistance) they got well; but it was not so with me; for although I had at first the inclination, I had not the strength left to vomit. During the latter part of the first day I was, however, so continually and fearfully purged, and suffered so much from headache and swimming of the brain, that I really thought every moment would be my last.

I was very ill for the next four or five days; suffered from loathing and lassitude; fell into deep sleep, long and troubled; at times found all my joints quite stiff; at others, found everything swimming before me; and it was not till a fortnight had elapsed that every bodily derangement had left me.

Fig. 14 is a portrait of the plant in question, taken before the culinary operations were commenced. No one, after seeing this picture, can fail to recognize the thing itself if found. It is large, has dull flesh-coloured gills, the top is a little downy, it smells like meal, and grows in woods.

It can always be found sparingly in autumn in the woods north of London.

Fiery Milk-Mushroom. Fig. 15.

(*Lactarius piperatus.*) 500.

I imagine there are very few species in this country more dangerous than this one. So essentially and power-

fully acrid is the milk, that if it be allowed to trickle over tender hands it will sting like the contact of nettles; and if a drop is placed on the lips or tongue, the sensation is like the scalding of boiling water, or the burning of a red-hot iron.

It is common in all woods; is particularly firm and solid, but rather brittle. In colour it is sometimes as white as snow, at others it inclines a little to cream; the milk is white and unchangeable, and usually abundant.

Fetid Mushroom. Fig. 16.

(*Russula fœtens.*) 530.

Less rigid than other *Russulæ*, brittle, and sticky in all its parts, always slug-eaten, and possessed of a wet insufferable odour that can be likened to nothing in nature, this species cannot in reason be anything but deleterious and pernicious to human life. Slugs certainly highly relish it; for although it is one of our commonest species, yet it is invariably much eaten by slugs: frequently the gills are covered with these creatures, or are even completely eaten away.

Blood-stained Mushroom. Fig. 17.

(*Russula sanguinea.*) 518.

This acrid species of Russula, sometimes found in woods, is by no means uncommon; its well-marked

blood-red top and *firm substance* at once distinguish it from other species. The gills are white, and run a little down the stem.

Livid Milk-Mushroom. Fig. 18.

(*Lactarius pyrogalus.*) 498.

The highly acrid white milk abundantly exuded from this plant, its depressed and zoned top, its peculiar livid coloration and yellowish gills, distinguish it from the other milk-mushrooms.

It grows in woods and meadows.

False Chantarelle. Fig. 19.

(*Cantharellus aurantiacus.*) 540.

Is known by its smaller size, its gills being far thinner and more crowded than in the true chantarelle; the stem frequently deep umber at the base, and the gills or veins darker than the top.

It is a species to be rejected for culinary purposes.

Yellow Milk-Mushroom. Fig. 20.

(*Lactarius theiogalus.*) 503.

This is a beautiful plant, with an odour that is far from disagreeable. It is *sometimes* without the zones on the top which are shown in our figure, but it is immediately known by the change of colour which takes place in the

milk on breaking the fungus; this is at first pure white, but in less than a minute the milk turns to a brilliant yellow.

It is not uncommon, and may generally be found at Hampstead in the woods; and it is supposed to be poisonous.

Emetic Mushroom. Fig. 21.

(*Russula emetica.*) 528.

This is a magnificent but certainly rare species, but it has a very bad name, and is supposed to possess highly dangerous qualities. The skin is scarlet, and may be readily peeled off, and then the pink flesh is displayed beneath, which is its great characteristic; the gills are pure white, and do not reach the stem; the top is highly polished, and varies from scarlet and crimson to a faint rose-colour, and may now and then be found shaded with purple.

It attains a large size, and loves damp places in woods, and the neighbourhood of trees.

Slimy Dung-Mushroom. Fig. 22.

(*Agaricus* [*Psalliota*] *semiglobatus.*) 327.

This extremely common little sticky Agaric grows in pastures, on dung, everywhere; the stem is covered with a glutinous thick slime.

It is regarded as poisonous.

Sulphury Mushroom. Fig. 23.

(*Agaricus* [*Tricholoma*] *sulfureus.*) 55.

In woody places at the south of London this very disagreeable but handsome species now and then puts in an appearance. It has a particularly nasty penetrating smell, which has been compared with "gas-tar." The stem is firm, as is the whole plant, and sulphur-coloured.

It is probably a very dangerous species, but I have seldom met with it.

Incrusted Mushroom. Fig. 24.

(*Agaricus* [*Hebelonia*] *crustuliniformis.*) 278.

Growing in woods, this deleterious species is extremely common, and without doubt very dangerous. The dirty pale-umber gills, and its habitat and time of growth—viz. the autumn—at once distinguish it from the delicious *A. gambosus,* fig. 19, Edible Sheet. It has a powerful and highly disagreeable odour, and brown spores, and we believe it is often mistaken by the ignorant for the true mushroom.

Verdigris Mushroom. Fig. 25.

(*Agaricus* [*Psalliota*] *æruginosus.*) 322.

The verdigris-green colour of the top of this mushroom is not permanent, but consists of green slime that soon

gets washed off by the rain, flaked with white scales. The stem is hollow, and the top fleshy.

It generally grows about stumps, is a very handsome fungus, and is doubtless poisonous.

Fiery Tube-Mushroom. Fig. 26.

(*Boletus piperatus.*) 597.

Never attains a larger size than the specimen on the sheet; indeed it is one of the smallest of all the *Boleti*. The taste is highly acrid; it is therefore looked upon with grave suspicion, and it is probably a very dangerous plant.

It grows in woods, but is rare.

Satanical Tube-Mushroom. Fig. 27.

(*Boletus Satanas.*) 606.

The specimen figured I gathered in Crab-tree Wood, near Winchester, during an architectural excursion to St. Cross. I have only once seen anything of it elsewhere, though my late friend Mrs. Gulson, of Eastcliff, has sent it on to me several times from the neighbourhood of Teignmouth.

Without doubt it is by far the most splendid of all the *Boleti*. The top is nearly white, very fleshy, and a little viscid; the stem is firm, exquisitely coloured, and beautifully reticulated; the under surface is brilliant crimson.

It usually attains a large size, grows in woods, and as soon as broken or bruised, changes to blue.

In all likelihood it is highly poisonous.

Pungent Milk-Mushroom. Fig. 28.

(*Lactarius acris.*) 505.

As its name indicates, this is a very acrid and dangerous fungus. It is said to be rare, but I have sometimes known it to be extremely abundant in the woods near London. When cut or broken, the flesh and white milk change to a dull-sienna red; this distinguishes it from all other mushrooms. To observe the change of colour it requires at times a little patience; for I have known half an hour, or even an hour, elapse before the change of colour is manifest.

Bitter Tube-Mushroom. Fig. 29.

(*Boletus felleus.*) 617.

Said to be rare, but generally abundant in Epping Forest. I have found it in abundance in Nottinghamshire, and know it well; it was the first Boletus I ever drew, and I was then nearly eating it for *Boletus edulis.*

The bitter taste of *B. felleus,* the *flesh-coloured tubes,* the flesh-colour of the top when broken, the reticulated stem, and the pink spores are the distinguishing marks of this species. It is poisonous.

False Champignon. Fig. 30.

(*Marasmius urens.*) 550.

The more slender habit, the mealy stem, white downy base, and the narrower, darker, and crowded gills, distinguish this counterfeit from the true champignon (fig. 28, Edible Sheet). It sometimes accompanies the latter plant, but with ordinary care can be detected in a moment. It grows in *woods*, as well as in pastures and by roadsides.

I think I was once poisoned by it in Bedfordshire. I well remember, on my way home late one evening, gathering a quantity of champignons for supper; and as it was dark, I imagine I must have gathered both species. I did not cook them myself, neither did I examine them after they were taken from the basket; but I noticed at supper-time that they were unsually hot, and I thought the old woman who cooked them had put too much pepper into the stew. I never suspected the fungi.

In about half an hour after partaking of them my head began to ache, my brain to swim, and my throat and stomach to burn, as if in contact with fire. After being ill for some hours, a terrible fit of purging and vomiting set in, which appeared soon to set me to rights; for after a day or so I was no worse for it.

Fetid Wood-Witch. Fig. 31.

(*Phallus impudicus.*) 914.

This is a great ornament to our woods, but its truly horrible effluvia beggars description; the nasal organs detect its presence at a long distance, and when neared the loathsome odour is indescribably revolting. Flies, however, appear to highly relish it; for these *Phalli* are invariably covered with flies, who greedily devour the odorous and liquid repast found at the top of the stem. It is most abundant at woody places in the north of London, all through the summer till the late autumn.

Had not this species really been eaten, with several other singular, offensive, and dangerous fungi figured on this sheet, it would have been hardly necessary to figure or refer to it at all.

THE END.

A Manual of Structural Botany.

By M. C. Cooke. With New Chemical Notation. 200 Illustrations. Twentieth Thousand. 18mo. cloth, 1s.

A Manual of Botanic Terms.

By M. C. Cooke. New Edition. Greatly enlarged, and including the recent Teratological Terms. With more than 300 Illustrations. Fcap. 8vo. cloth, price 2s. 6d.

Elements of Arithmetic.

From the French of M. C. Briot. Translated by J. Spear, Esq. Crown 8vo. cloth, price 4s.

Mangnall's Questions.

New and Complete Edition. 12mo. cloth, 1s.

'Published in a compact form, neatly bound, and being condensed without being abridged, comes before us in a greatly improved form. Few books contain so much information in so small a space.'—*Portsmouth Guardian.*

Method for Teaching Plain Needlework in Schools.

By M. E. Trotter. Illustrated by Diagrams and Samplars. 8vo. cloth, price 2s. 6d.

This useful method is based on *steps* which are *gradual, well defined,* and clear to the *perception.* It is calculated to insure the improvement of each individual child, and while it offers the necessary instruction to the less talented pupil, it enables the more clever one to attain the highest degree of perfection.

Oral Training Lessons in Natural Science and General Knowledge.

Embracing the subjects of Astronomy, Anatomy, Physiology, Chemistry, Mathematical Geography, Natural Philosophy, the Arts, History, Development of Words, &c. Intended for Teachers of Public Schools, and also for Private Instruction. By H. Barnard, Principal of Lincoln's School, Minneapolis. Crown 8vo. price 2s. 6d.

Practical Physiology: a School Manual of Health.

Being a Practical Guide to the Means of Securing Health and Life. Intended for the use of Classes and general reading. By Dr. Lankester, F.R.S. Sixth Edition. Fcap. 8vo. Illustrated. Price 2s. 6d.

'There is not a school of any kind for males or females, rich or poor, in which the book might not be used as a text-book; indeed, it ought to be as common as an English Grammar. Few persons are capable of forming an idea of the increase of human happiness and the material prosperity which would follow a more general appreciation of the laws of health.'—*Lancet.*

London: HARDWICKE & BOGUE, 192 Piccadilly, W.